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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,178	12/21/2001	Jae Young Chung	2658-0277P	4389

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EXAMINER

ERDEM, FAZLI

ART UNIT PAPER NUMBER

2826

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/024,178

Applicant(s)

JAE CHUNG

Examiner

Fazli Erdem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,12 and 13 is/are rejected.
- 7) ☒ Claim(s) 3-11 and 14-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03/02/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Allowable Subject Matter*

1. Claims 3-11 and 14-19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 2 rejected under 35 U.S.C. 103(a) as being unpatentable over den Boer et al. (5,780,871) further in view of Bae (5,808,706) further in view of Ikeda et al. (5,182,661).

Regarding Claims 1 and 2, den Boer et al. disclose a TFT structure including a photo-imageable insulating layer for use with LCDs and image sensors where an active matrix liquid crystal display having a high pixel aperture ratio is disclosed. The display has an increase pixel aperture ratio as a result of the pixel electrodes formed over the insulating layer so as to overlap portions of the array address lines. Fig. 1 shows the storage capacitors. Den Boer et al. fail to disclose the plurality of storage capacitors in the required manner and the contact hole structure. However, Bae discloses a thin-film transistor liquid crystal display devices having cross coupled storage capacitors where the required plurality of capacitors in the required manner is disclosed.

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Furthermore, Ikeda et al. disclose a thin film field effect transistor array for use in active matrix liquid crystal display where the required contact hole structure in Claims 4 and 6 is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required plurality of storage capacitors in the required manner and the required contact hole structure in den Boer et al. as taught by Bae and Ikeda et al. respectively in order to have a liquid crystal display device with higher performance.

3. Claims 12 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over den Kim (5,796,448) further in view of Rho et al. (6,057,896) further in view of Ikeda et al. (5,182,661)

Regarding Claims 12 and 13, Kim discloses a structure for a parasitic capacitor and a storage capacitor in a thin film transistor liquid crystal display and a method for making the same where the drain of the TFT which operates as a first upper electrode of the parasitic capacitor and a second upper electrode of the storage capacitor overlaps with the pixel electrode. An insulating layer is disposed between the second upper electrode and the pixel electrode. Insulating layer is also disposed between a first lower electrode of the parasitic capacitor at its associated upper electrode as well as a second lower electrode of the storage capacitor and its associated upper electrode. The overlapping direction of the two upper electrodes is identical with that of the two lower electrodes. Kim fails to disclose the required protective layer and contact hole structure. However, Rho et al. disclose a liquid crystal displays using organic insulating material for a passivation layer and/or a gate insulating layer and manufacturing method there of where the required protective layer is disclosed. Furthermore, Ikeda et al. disclose a thin film field effect

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transistor array for use in active matrix liquid crystal display where the required contact hole structure in Claims 4 and 6 is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required protective layer and contact hole structure in Kim as taught by Rho et al. and Ikeda et al. respectively in order to manufacture a liquid crystal display device with higher performance.

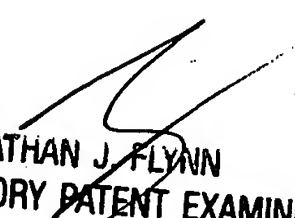
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (571) 272-1914. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FE  
May 16, 2004

  
NATHAN J. FLYNN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800